Approval and Communication of Refinery, Maintenance, or Engineering Instructions

Document No.: RI-367	**Title:** Pre-Startup Safety Review	**Current Date:** 12/2011
Action: ☐ New ☒ Revision ☐ Cancellation		**Next Revision Due:** 12/2016
Responsible Organization: OE/PSM	**Position to Contact With Questions/Suggestions:** PSM Team Lead	

Summarize Rewritten Material: **Review:** **Minor** ☐ **Complete** ☒

Since this revision did not change a policy or procedure and it was completely reviewed, it only needs the owner and owner's managers approval to "reset" the Next Revision Due date to 12/2016.

Added job aids and checklists to 2.1.2, Required Confirmation.

Combined 4.2 New Facilities and 4.3 Modified Facilities into 4.2 New or Modified Facilities.

Added RBM Responsibilities to Appendix II.

REQUIRED COMMUNICATION/TRAINING

If Type 2 or Type 3 training is necessary – Instruction Owner is responsible for developing the training material and must work with Development Department Manager and Managers of affected personnel to coordinate training of affected personnel and documentation of training.

This document should be reviewed by:	Type 1 Simple Change	Type 2 On-The-Job Training	Type 3 Classroom Training
All Refinery Personnel	☒	☐	☐
Operations	☐	☐	☐
Maintenance & Reliability	☐	☐	☐
Technical	☐	☐	☐
HES	☐	☐	☐
Other: Contractors	☒	☐	☐

Necessary Approval for Instructions:

- Refinery Instructions: *Standard RI approvals have been check marked*
- Safe Work Practices: Development, Operations, Maintenance & Reliability, HES, and Refinery Manager
- Emergency Plans (400 Series RIs): Development, Operations, Maintenance & Reliability, HES, and Refinery Manager
- Engineering Instructions: Technical and HES Manager
- Maintenance Instructions: Maintenance & Reliability and HES Manager
- Cancellation of Instruction: Owner and Refinery or Appropriate Dept. Manager

APPROVALS

☒	**Instruction Owner:** Karen Draper	☐	**Development Manager:** *(first signature before final routing)*
☐	**Operations Manager:**	☐	**Technical Services Manager:**
☐	**HES Manager:**	☐	**Maintenance & Reliability Manager:**
☐	**Refinery Manager:** *(final signature)*	☒	**Other Manager:** Steve Wildman

On Completion – Instruction Owner will send file and message to IPC to post on the Refinery server.

RICHMOND REFINERY INSTRUCTIONS

PROCESS SAFETY MANAGEMENT **PRESTART-UP SAFETY REVIEW**

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PROCESS SAFETY MANAGEMENT **PRESTART-UP SAFETY REVIEW**

1.0 PURPOSE

1.1 Regulations

The purpose of this instruction is to establish and communicate Richmond Refinery's policy for complying with pre-start-up Safety Review requirements of the following regulations:

1. U.S. Federal EPA requirements of 40 CFR Part 68 - Prevention program elements for Risk Management Plan (RMP)

2. Cal/OSHA requirements of General Safety Orders, CCR Title 8, 5189 Process Safety Management (PSM) regulation

3. Cal/OSHA requirements of CFR Title 8 19, Division 2, Chapter 4.5 California Accidental Release Prevention (Cal/ARP) program

4. City of Richmond Industrial Safety Ordinance (RISO) 42-01. Limited to 6.43.90(b)

1.2 Applicable Requirements

Additionally, to meet the Corporate Operational Excellence (OE) requirements to conduct pre-start-up reviews on all new and modified facilities prior to operation and after shutdowns or restarting idle facilities to confirm they meet the applicable requirements.

2.0 SCOPE AND OBJECTIVES

2.1 Required Confirmation

The previously referenced regulations require confirmation that certain critical safety related items have been completed prior to the introduction of a regulated substance, acutely hazardous, flammable, explosive materials, or sources of energy to a process or whenever a modification to the unit or equipment is significant enough to require a change in the Process Safety Information (PSI).

PSSR is a redundant (audit) process mandated by law and reinforced by OE to ensure that certain activities have been completed. For changes that require the use of an MOC, a PSSR is performed to ensure the following regulatory requirements are met:

1. Construction and equipment are in accordance with critical design specifications, such as Process Safety Information (PSI), e.g., P&IDs,

electrical one lines, area classifications, piping classifications, and good construction practices.

*2. Safety, operating, maintenance, emergency procedures, job aids, and checklists are in place and adequate.

3. For new facilities, a Process Hazards Analysis has been performed and recommendations have been resolved or implemented before start-up.

4. For modified facilities, the requirements of Management of Change (refer to RI-370) have been met.

5. Communication and/or training of affected operating, maintenance, technical, and contract workers have been completed and Process Safety Information is in place.

6. The PSSR shall involve employees with expertise in process operations, maintenance, and engineering, based upon their experience and understanding of the process system being evaluated.

2.2 PSSR Requirement

For Maintenance Shutdowns, Turnarounds, or Capital Projects, a PSSR is required to confirm:

1. All MOC's associated with the shutdown are cleared for start-up.

2. The MOC process captured all the changes accompanying the shutdown.

3. All planned and unplanned work is complete.

4. Non-MOC work (changes in kind), as well as MOC work, were complete in accord with quality assurance programs.

2.3 When PSSR Is Not Required

1. A PSSR is not required for a start-up where the unit was not opened, such as catalyst regeneration or an emergency shutdown, or prior to start-up of a unit that had been shut down for optimization purposes; providing no work was performed on the unit.

2. A PSSR is not required for changes that are limited to operating procedures only.

3.0 PSSR PROCESS

3.1 PSSR Processes Goal

There are two PSSR processes within the Refinery that share the same goal: to meet the regulatory requirements and/or to meet the local and OE expectations.

1. The Shutdown, Turnaround, or Capital Projects PSSR Process should be used under the following conditions:

   a. Prior to start-up of a new unit

   b. Prior to start-up of an existing unit (after a shutdown or turnaround) even if no MOC work was **performed**, or

   c. Prior to start-up of an existing unit (after a shutdown or turnaround) where MOC work has been performed.

2. The Management of Change PSSR Process is required for all changes that require an MOC to be issued to manage the change to meet the regulatory requirements.

   NOTE: Due to the overlap of regulatory and company requirements it may be necessary to perform multiple types of PSSRs. Refer to Section 6 (Special Requirements).

4.0 WHICH PSSR FORM TO USE

4.1 Maintenance Shutdown

Use PSSR Appendix I to document the PSSR for normal maintenance shutdowns. Appendix I can cover a single plant or a logical combination of plants.

*4.2 New or Modified Facilities

Use PSSR Appendix II to document changes classified as new or modified facilities. A new facility is defined as a relatively "major" change; for example, the addition of a new column or reactor with associated heat exchangers, pumps, piping, and instrumentation. It can be a new plant or an addition to an existing plant. A new facility requires a PSSR tailored to the project. A modified facility includes alterations to existing equipment and limited equipment additions to existing process facilities; e.g., piping, pumps, heat exchangers, instrumentation, or procedures.

4.3 MOC PSSR

For less complex changes or changes that required the use of an MOC, use PSSR Appendix III to meet the company and regulatory requirements.

5.0 HOW TO USE APPENDIXES I, II, III, AND IV

5.1 PSSR Appendix I and II

The PSSR Appendix I and II will follow the Shutdown, Turnaround, or Capital Projects PSSR Process, which **is comprised of the** following tools; to ensure **company and legal** requirements are fufilled:

1. Process Flow Chart
2. Responsible, Accountable, Consulted, and Informed (RACI) matrix
3. Task lists for each activity (embedded in process flow chart)
4. A PSSR Facilitators Checklist
5. An Operational Readiness Review Checklist (ORRC)

5.2 Appendix I

The PSSR Facilitator convenes a PSSR Team and coordinates a walk-through and the completion of Appendix I. Team membership includes a business unit representative, the Maintenance Shutdown Supervisor, a representative from Technical, and additional members chosen for their understanding of the work during the shutdown. Appendix I must be completed and approved before start-up. Start-up is defined as the introduction of hydrocarbon, chemicals, or connection to a live relief system.

NOTE: Refer to the PSSR database to create, document, and track PSSR Appendix I processes.

5.3 Appendix II

The PSSR Facilitator convenes a PSSR Review Team. Team members are chosen for their understanding of the change. Not all organizations listed on Appendix II must be represented—only those that are applicable. A PSM representative is required to participate in Appendix II PSSRs. A team walk-through is required. Appendix II must be completed and approved before the facilities start-up.

NOTE: Refer to the PSSR data base to create, document, and track PSSR Appendix II processes.

5.4 Appendix III

PSSR Appendix III is embedded in the MOC data base as part of the MOC process. The PSSR assignee is the person responsible for facilitating and gathering the appropriate personnel necessary to perform the field verifications; to verify the regulatory requirements of the PSSR have been completed.

5.5 Appendix IV Operational Readiness Review Checklist (ORRC)

PSSR Appendix IV Operational Readiness Review Checklist (ORRC) is required in addition to PSSR Appendix I & II and is optional for MOC PSSR Appendix III. It is used to record the results of the team walk-through and is available in the PSM database.

6.0 SPECIAL CIRCUMSTANCES

A System Release Schedule is developed in the planning phase of project or the IMPACT process. In order to facilitate the start-up of a unit there may be times where testing of equipment or commissioning of subsystems (e.g., steam, H_20, N_2, etc.) needs to take place prior the completion of the unit PSSR (Appendix I or II). In order to meet the regulatory requirements, the MOC data base allows multiple PSSRs to be created for a single MOC to accommodate the need to identify and commission subsystems.

In those cases, the person signing off the subsystem PSSR as complete (Local Refinery Business Manager or delegate) is authorizing the start-up of the identified subsystem as meeting the regulatory requirements. When all of the subsystems have been commissioned the PSSR Appendix I and/or Appendix II may be performed; the Local Refinery Business Manager may then sign the approval to start up the change on the master MOC.

7.0 PSSR EXCEPTIONS

Exceptions are items that may be identified during the PSSR that need to be resolved. The PSSR facilitator and the Local Refinery Business Manager (or delegate) must review and agree on exceptions prior to start-up of the unit or equipment. Exceptions will be documented in the MOC or PSSR data base. Each exception will be specific, assigned to an individual, have a due date and be identified as required prior to start up (yes/no).

7.1 Required Prior to Start-Up

These exceptions are critical activities that must be resolved prior to start-up of the unit or equipment such as Process Hazards Analysis (PHA) Recommendations, or plant reliability related activities.

7.2 Not Required Prior to Start-Up

These exceptions are low risk activities that need to be resolved, yet would not prevent the safe start-up or operation of the unit or equipment.

8.0 DOCUMENTATION REQUIREMENTS

For each MOC driven change, (using Appendix III), the PSSR facilitator must verify the training or communication of affected operations, maintenance, and contract workers have been completed.

Depending on the type of change, not all other verifications may be required. The PSSR facilitator will ensure the basis for not performing each verification is documented in the "justification" field and signed by the appropriate person.

If a new or modified facility has performed a PHA or HSE, all recommendations resulting from those activities shall be documented as complete or resolved in the Refinery PHA data base prior to start-up.

9.0 FOLLOW-UP

PSSR exceptions that become overdue will be automatically posted to the OERI Dashboard for prompt intervention by management.

You can access the OERI Dashboard from the Richmond Refinery home page:

- Select "Metrics & Information" on the top left side.
- In the pull-down menu, select "Operational Excellence Reliability Intelligence (OERI)" and click it.
- *The page will open up to the OE~~RI~~ Dashboard.

RICHMOND REFINERY INSTRUCTION

APPENDIX I
MAINTENANCE SHUTDOWN CHECKLIST
PRE-STARTUP SAFETY REVIEW

PROCESS SAFETY MANAGEMENT

PSSR Number: _____

Project/Equipment Description: _____

_____

_____

The PSSR Facilitator convenes a meeting of a PSSR Review Team prior to start-up of the facilities covered by this MOC-PSSR. The Team Leader chooses team members based on their understanding of the MOC (use the list below as a memory jogger). This team conducts a walk-through if there is altered or additional equipment. The team verifies the MOC review is complete and confirms the change is ready to start up. The team generates a list of incomplete items identifying item owner and timetable for completion. Representatives acknowledge below their organization's work is complete (except as noted on the list below), that current QA programs were followed, and that records will be retained for audit purposes.

	Person Responsible:	Notified On:	Completed By:	Date:
Business Unit Rep.:				

- Determines all MOC's associated with this facility are approved for start-up.

Maintenance Shutdown

	Person Responsible:	Notified On:	Completed By:	Date:
Supervisor Rep.:				

- Certifies that all planned and unplanned work required for start-up is complete, except as noted on the list below.
- Verifies that existing quality assurance programs (e.g., PMI, Metal Craft Quality Assurance, VOC valves, and loop checks) were followed.
- Puts maintenance checklists and records in files for audit purposes.

Other PSSR Review Team Members (include organization and name):
Examples of other organizational groups that may be included for shutdowns where they have significant input:
Engineering, Plant Protection, Utilities, Environmental and Safety, IMI, or Inspectors.

Organization	Name	Notified On	Completed By:	Date

Refinery Business Manager Responsibilities:

- Verifies that operating procedures are in place for this particular start-up.
- Verifies that affected operating personnel are trained for this particular start-up.
- Confirms start-up checklists (i.e., initialed start-up/pre-startup section of Operating Procedures and referenced checklists such as blind lists) will be completed and put in files for audit purposes.

Miscellaneous Comments:

_____

_____

Incomplete items showing owner and timetable for completion (attach additional pages as necessary):

Employee name	Exception	Resolution	Due Date	Comp. On	Notified On

I recommend this facility be placed in operation:

Responsible Facilitator: _____
Notified On: _____
Facilitator Signature: _____
Completed On: _____

Approved for Operation:

Responsible RBM: _____
Notified On: _____
RBM Signature: _____
Completed On: _____

RICHMOND REFINERY INSTRUCTION

APPENDIX II
PRE-STARTUP SAFETY REVIEW
FOR NEW OR MODIFIED FACILITIES

PROCESS SAFETY MANAGEMENT

ABU: _____ **PSSR Number:** _____

Plant: _____ **Completed On:** _____

Project/Equipment Title: **Completed By:** _____

_____ **Assigned To:** _____

The PSSR Facilitator convenes a meeting of a PSSR Review Team prior to startup of the facilities covered by this MOC-PSSR. The Team Leader chooses team members based on their understanding of the MOC. This team conducts a walk-through if there is altered or additional equipment. The team verifies the MOC review is complete and confirms the change is ready to start up. The team generates a list of incomplete items identifying item owner and timetable for completion. Representatives acknowledge below their organization's work is complete (except as noted on the list below), that current QA programs were followed, and that records will be retained for audit purposes.

MOC Number: _____

	Responsible Person:	Notified On:	Completed By:	Completed On:
Business Unit Rep:				
Maintenance:				
Project Engineering:				
Process Engineering:				
IMI:				
Environmental:				
Safety:				
Certified Boiler Inspector Rep:				
Electrical Inspector:				
Utilities:				
I&E				
Plant Protection:				
Shutdown Engineering:				
CIP/COR Building Permits:				
PSM:				

Incomplete items showing owner and timetable for completion (attach additional pages as necessary):

Employee Name	Exception	Resolution	Due Date	Comp. On

I recommend this facility be placed in Operation:

PSSR Facilitator: _____ **Date:** _____

***Refinery Business Manager Responsibilities:**

- Verifies that operating procedures are in place for this particular start-up.
- Verifies that affected operating personnel are trained for this particular start-up.
- Confirms start-up checklists (i.e., initialed start-up/pre-startup section of Operating Procedures and referenced checklists such as blind lists) will be completed and put in files for audit purposes.

Approved for Operations:	Responsible:	Notified On:	Completed By:	Completed On:
Refinery Business Manager:				

Operations and Maintenance Managers must approve prior to start-up of a new or modified facility

Operations Manager:				
Maintenance Manager:				

RICHMOND REFINERY INSTRUCTION

APPENDIX III
PRE-STARTUP SAFETY REVIEW
FOR MOC

PROCESS SAFETY MANAGEMENT

EWO No. _____ **MOC Number:** _____

Maximo No.: _____ **Completed On:** _____

Completed By: _____

Project/Equipment Description: **Assigned To:** _____

_____

Attendees: _____

	Approved By:	Approved Date:
1. Has the equipment and construction been completed in accordance with the critical design specifications? Some examples of how this may be accomplished are:		
• Review of equipment quality assurance and inspection records.	_____	_____
• Review of construction inspection records.	_____	_____
• P&ID and other PSI check - after mechanical completion and facility walk-through inspection.	_____	_____
Justification: _____		
2. Are safety, operating, maintenance, and emergency procedures in place and adequate?	**Approved By:**	**Approved Date:**
• The phrase "in place and adequate" means: written, reviewed, approved, and accessible to employees requiring the procedures in their work.	_____	_____
• This does not prevent the use of "mark-up" procedure to satisfy the requirement, but these must undergo the same review and approval and training interaction as would "the final version" of the same procedure and would require rigorous control.	_____	_____
Justification: _____		
3. Has the communication or training of affected operating, maintenance, and contract workers been completed?	**Approved By:**	**Approved Date:**
• Maintenance employees, contractors, and other employees whose work is affected by the change must be informed of the change and trained in the impact on their job tasks before the changed equipment is started up.	_____	_____
Justification: _____		
4. Have the quality assurance goals of mechanical integrity been met?	**Approved By:**	**Approved Date:**
• Ensure that changes are suitable for the intended service.	_____	_____
• Ensure that the quality of the work is acceptable.	_____	_____
Justification: _____		
5. Have all recommendations resulting from PHA's or HSE's been addressed or resolved?	**Approved By:**	**Approved Date:**
• Ensure all Recommendations have been documented as addressed or resolved.	_____	_____
Justification: _____		

Incomplete items showing owner and timetable for completion (attach additional pages as necessary):

Employee Name	Exception	Resolution	Due Date

_____
Approved for Start-up RBM or Delegate & Date

RICHMOND REFINERY INSTRUCTION

APPENDIX IV
PRE-STARTUP SAFETY REVIEW
OPERATIONAL READINESS REVIEW CHECKLIST (ORRC)

PROCESS SAFETY MANAGEMENT

The purpose of this review is to ensure that the equipment and work area is ready to operate safely. This review should be conducted immediately prior to start up.

PSSR No: _____ **Project/Equipment Title:** _____

RBU: _____ **Plant:** _____

Item	Y	N	N/A	Comments
General				
1. Cleanup complete and satisfactory?	☐	☐	☐	
2. Explosion-proof devices properly installed and completely bolted?	☐	☐	☐	
3. Fire protection equipment ready and operational?	☐	☐	☐	
4. Required safety equipment in place, inspected and tested and in service?	☐	☐	☐	
5. Maintenance blinds removed; is blind list(s) complete?	☐	☐	☐	
6. Oil levels in pumps, turbines and motors checked, and oil mist systems activated?	☐	☐	☐	
7. Temporary hoses, piping, connections, scaffold, etc., removed?	☐	☐	☐	
8. Chemical containers properly labeled identified with chemical name hazard warning, barcode and included in the Chemical inventory?	☐	☐	☐	
9. New and/or modified equipment properly identified?	☐	☐	☐	
10. Restriction orifices installed, tagged, and correct?	☐	☐	☐	
11. Flow meter orifices installed and directionally correct?	☐	☐	☐	
12. Utility systems reviewed and Utility Connection Permits complete and approved?	☐	☐	☐	
13. Conduit gaskets and covers installed?	☐	☐	☐	
14. Electrical seals properly installed and poured?	☐	☐	☐	
15. Instruments properly sealed, traced, insulated, etc.?	☐	☐	☐	
16. Associated locks and tags been removed?	☐	☐	☐	
17. Measurement systems functional and operable?	☐	☐	☐	
18. All equipment properly labeled?	☐	☐	☐	
19. Insulation in place?	☐	☐	☐	
20. Flange bolts, head bolts, manway bolts tight (hammer tested)?	☐	☐	☐	
21. Heat Tracing in place?	☐	☐	☐	
22. Pressure and temperature gauges installed?	☐	☐	☐	
23. Plant entry gates closed?	☐	☐	☐	
24. All Yellow Poles and K-Rails in place?	☐	☐	☐	

PSSR No: _____ **Project/Equipment Title:** _____

RBU: _____ **Plant:** _____

Item	Y	N	N/A	Comments
Piping			☐	
1. Non-essential vents and drain valves closed?	☐	☐	☐	
2. Plugs and blind flanges installed?	☐	☐	☐	
3. Flanges opened during shutdown properly mated? Correct rating, material and tested?	☐	☐	☐	
4. PRD's tested and properly tagged?	☐	☐	☐	
5. PRD isolation valves locked open?	☐	☐	☐	
6. Control valves installed, checked for correct fail-safe position, correct flow direction stroked and verified as operating correctly?	☐	☐	☐	
7. Spectacle blinds in correct position?	☐	☐	☐	
8. Lines flushed to remove debris?	☐	☐	☐	
Pumps			☐	
1. Does bed plate catch all oil drips and have adequate drainage?	☐	☐	☐	
2. Warning signs posted where a pump starts up automatically by remote control?	☐	☐	☐	
3. Temporary strainers placed ahead of pumps to protect pump?	☐	☐	☐	
Turbines			☐	
1. Turbine case and exhaust steam lines provided with a steam trap to remove condensate?	☐	☐	☐	
2. Turbines have a sentinel relief valve?	☐	☐	☐	

Other Review Participants: _____

The above review has been completed satisfactorily and all pre-startup issues are resolved.

Completed by: _____ **Date:** _____
(signature)